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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,556	02/22/2002	William S Gornall	B - 5	3251

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EXAMINER

CONNOLLY, PATRICK J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,556

Applicant(s)

GORNALL ET AL.

Examiner

Patrick J Connolly

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12-16, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 17-21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 25 and 26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 4,383,762 to Burkert.

As to claim 25, Burkert discloses a two-beam interferometer for measuring wavelength including (see Figure 3):

means for propagating said beams simultaneously or successively in coincident relationship along an optical path that undergoes a change in length (1', 21', 4', 13', 12', 8', etc.); and

means responsive to interference in said beams for measuring said wavelength of an input beam with respect to a reference beam (5').

As to claim 26, Burkert discloses an oscillatory bar (8') with a retroreflector (3') and a fixed mirror (4').

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-16 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burkert as applied to claims 25 and 26 above, and further in view of U.S. Patent No. 3,807,029 to Troeger.

As to claim 12, Burkert teaches a Michelson interferometer (see Figure 3) having an oscillatory bar (8'), a pivot (7'), a retroreflector (3'), and a fixed end mirror (4').

Burkert does not teach a flexure pivot.

Troeger teaches a flexure pivot for "supporting a mechanism which is to be limitedly rotated about an axis." (see column 1, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute a flexural pivot of Troeger for the bearing based pivot of Burkert so as to achieve the advantage of limited friction and wear (see Troeger column 1, lines 59-64).

As to claim 13, Burkert teaches a reflecting surface (4') parallel to the oscillatory bar at an intermediate position.

As to claim 14, Burkert teaches a detector (5') and a beamsplitter (1').

As to claim 15 and 16, Burkert teaches balancing the retroreflectors on either side of the pivot (See arrangement of Figure 2). It would have been obvious to one of ordinary skill in the art at the time of invention to balance the retroreflectors shown in the embodiment of Figure 3 in a manner such as shown in the embodiment of Figure 2.

As to claim 22, Burkert teaches an electromagnetic actuator (see Figure 1: 9a and 9b).

As to claim 23 Burkert teaches a two-beam interferometer for measuring wavelength including (see Figure 3): means for propagating said beams simultaneously or successively in coincident relationship along an optical path that undergoes a change in length (1', 21', 4', 13',

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12', 8', etc.); and means responsive to interference in said beams for measuring said wavelength of an input beam with respect to a reference beam (5').

As to claim 24, while Burkert does not teach a specific range for change in path length, it would have been obvious to one of ordinary skill in the art at the time of invention to choose appropriately sized optics so that a desired change in path length appropriate to the measurement desired could be achieved.

Allowable Subject Matter

Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 17, the prior art of record, taken alone or in combination, fails to disclose or render obvious an interferometer for measuring wavelength including at least one fixed retroreflector opposite to a retroreflector on an oscillatory bar, where the fixed retroreflector smaller in width than the retroreflector on the bar and has a center offset from the center of the bar's retroreflector, in combination with the rest of the limitations of claim 17.

Claims 1-11 allowed.

The following is an examiner's statement of reasons for allowance:

As to claim 1, the prior art of record, taken alone or in combination, fails to disclose or render obvious an interferometer wavelength meter including: a fixed retroreflector having a reflecting surface spaced from an oscillating bar and parallel thereto when said oscillating bar is

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in a position intermediate to an arc within the bending limit of a flexural pivot, in combination with the rest of the limitations of claim 1.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571.272.2415. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0956.

pjc /Tc
1.29.2004


Frank G. Font
Supervisory Patent Examiner
Technology Center 2800